

*FUNCTIONAL ANALYSIS AND TREATMENT OF
PROBLEM BEHAVIOR EXHIBITED BY ELEMENTARY
SCHOOL CHILDREN*

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A functional analysis involving antecedent events was conducted with 4 students who had been identified as having behavior problems. Off-task behavior was measured while task difficulty and level of adult attention were manipulated during analogue sessions. Results revealed two patterns: Three students displayed higher rates of off-task behavior during difficult tasks, and 1 displayed higher rates of off-task behavior during sessions with low attention. Improved behavior was observed when students were taught an alternative behavior that matched the assessment results.

DESCRIPTORS: functional analysis, academic behavior, children

Carr and Durand (1985) conducted functional analyses in an analogue classroom setting to evaluate the effects of altering antecedent variables (levels of task difficulty or adult attention) on the disruptive behavior of children who had been diagnosed with developmental disabilities. The effects of interventions using relevant and irrelevant mands were evaluated, with results suggesting that mands matched to the presumed function of behavior were most effective. Cooper, Wacker, Sasso, Reimers, and Donn (1990) also conducted functional analyses of similar antecedent variables, but evaluated effects on the on-task behavior of children with conduct problems and mild disabilities or normal cognitive development. Cooper et al. used a multielement design within brief (90 min) analogue conditions. The purpose of the present study was to extend the pro-

cedures used by Carr and Durand and Cooper et al. to children with mild disabilities in a school setting. In the current study, a functional analysis of antecedent variables was conducted with 4 children who displayed behavior problems at school. The findings were then used to assess the efficacy of two different interventions, one that matched the proposed function of the problem behavior and one that did not.

METHOD

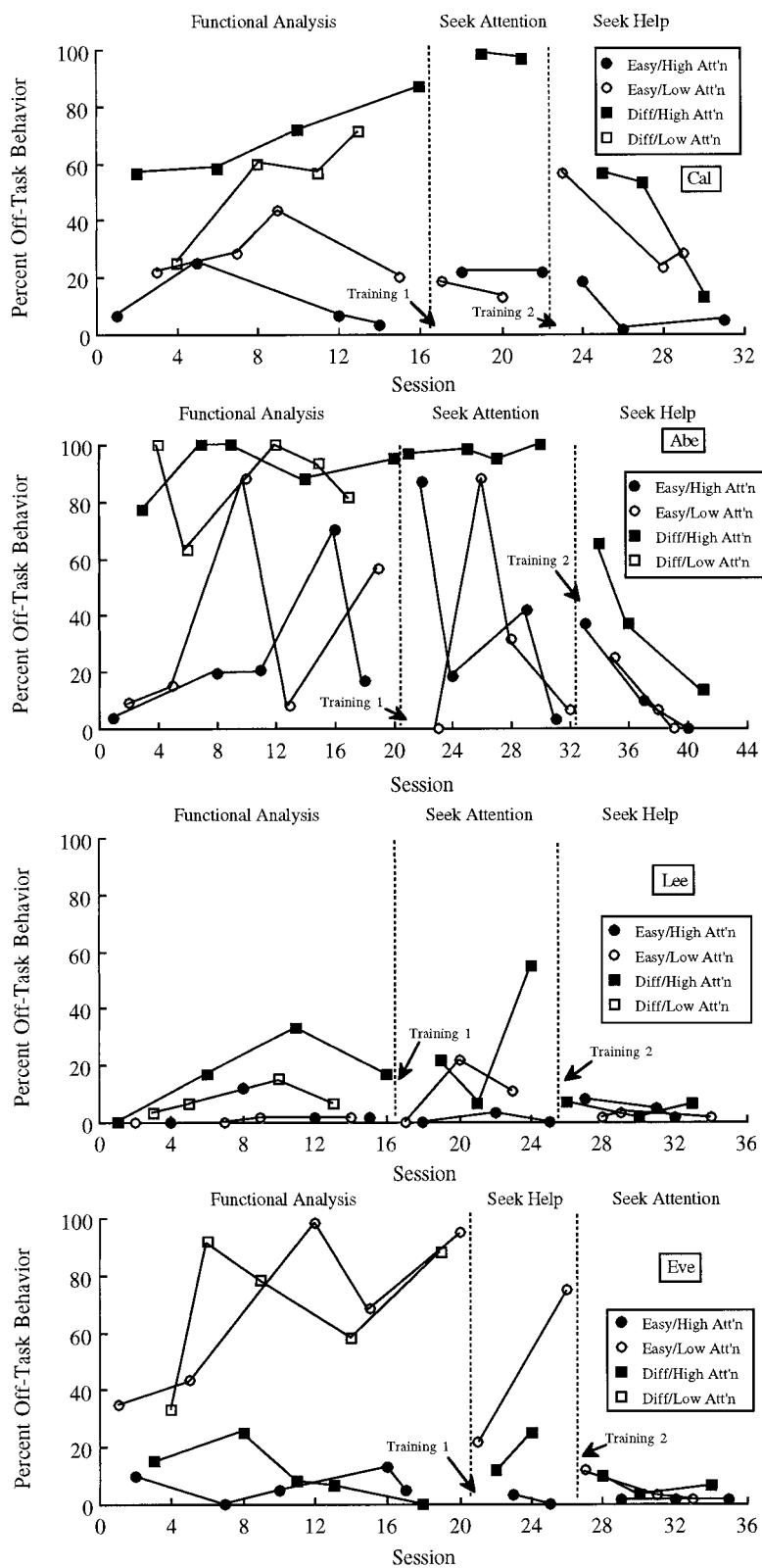
Participants and Setting

Four children attending a school for children with learning disabilities and emotional handicaps had been referred by their principal because of behavior problems. Two children (Abe and Cal) were in first grade; the other 2 (Eve and Lee) were in third grade. Eve was taking methylphenidate and guanfacine during the study; none of the other children received any prescribed medications. Assessments completed by other agencies indicated the children were functioning in the borderline to average range of intellectual ability (IQ range, 75 to 98).

Experimental sessions for each participant were conducted in analogue settings in three different rooms that contained typical edu-

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cational materials. Room assignment was determined by availability. During each session the student and experimenter were seated at a table; the experimenter was approximately 1 m from the student.

Procedure

A multielement design was used to evaluate the effects of attention and task difficulty on off-task behavior. Four different conditions were conducted: (a) easy task/high attention, in which the student was assigned easy tasks and attention was provided approximately every 30 s; (b) easy task/low attention, in which the student was given easy tasks but attention was provided every 3 to 4 min; (c) difficult task/high attention, in which the child was assigned difficult tasks while attention was provided every 30 s; and (d) difficult task/low attention, in which attention was provided every 3 to 4 min. During all conditions, attention was delivered on a response-independent variable schedule and consisted of a combination of prompts to continue working and comments regarding the student's effort and quality of work.

Easy and difficult tasks were determined by consulting with each child's teacher. Easy tasks were those that the student could accurately complete more than 90% of the time, and difficult tasks were those that the student might be able to accurately complete at a rate of 50%. During sessions with easy tasks, students completed an average of 54 problems per session, averaging 95% correct. During sessions in which difficult problems were programmed, students attempted an average of 12 problems per session, averaging 62% correct. Also, during the last difficult-task conditions (when intervention was

matched to assessment results), an average of 16 problems per session were attempted and correctly answered 69% of the time.

When data patterns emerged that suggested relationships between antecedent events and off-task behavior (i.e., off-task behavior was more likely during low-attention conditions or difficult-task conditions), a multielement design was again used to evaluate two different interventions: (a) reinforcement of a response with attention ("Am I doing good work?") or (b) reinforcement of a response with assistance ("I need some help"). First, participants were taught an "irrelevant" verbal statement (i.e., one not matched to the hypothesized function of the behavior). After data were collected to assess the effects of this intervention, participants were taught another verbal statement which was matched to the hypothesized function. The difficult task/low attention condition was not conducted during the evaluation phases because of teacher concerns regarding missed class time.

Data Collection

All sessions were videotaped, and participants were aware of the taping. Videotapes were scored by two undergraduates trained by the author. A 20-s momentary time-sampling procedure was used to record student on- or off-task behavior and experimenter comments. *On-task behavior* was defined as the student working on the assigned task as evidenced by eyes focused on the materials with pencil in hand. *Off-task behavior* was defined as the child not doing the task he or she was assigned but instead doing such things as crying, singing, getting out of seat, playing with other materials in the room, and so forth.

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Figure 1. Percentage of intervals of off-task behavior for Cal, Abe, Lee, and Eve during the functional analysis of antecedent events, after teaching a functionally irrelevant behavior (Training 1), and after teaching a functionally relevant behavior (Training 2).

Interrater agreement was calculated by dividing the number of intervals of agreement by the sum of the number of intervals of agreement plus intervals of disagreement and multiplying by 100%. Agreement was collected during 35% of the sessions and averaged 92% for off-task behavior across all participants and 96% for experimenter comments. The experimenter averaged 19 comments during the high-attention conditions and 2 comments during the low-attention conditions.

RESULTS AND DISCUSSION

Figure 1 indicates the off-task behavior for the 4 participants during the antecedent analysis and two intervention phases. Two patterns of responding were observed during the antecedent analysis. Three students (Abe, Cal, and Lee) exhibited relatively low rates of off-task behavior during easy tasks with or without frequent attention. However, increased rates of off-task behavior were associated with increased task difficulty. One student (Eve) exhibited high rates of off-task behavior when low rates of attention were provided regardless of task difficulty.

During the first intervention phase when the students were taught an irrelevant response (attention for Abe, Cal, and Lee; seek help for Eve), they exhibited similar patterns of behavior and did not use the irrelevant phrase. However, after Abe, Cal, and Lee were taught a relevant response, a decrease in off-task behavior was observed concomitant with the use of the "requesting help" phrase (range, 0 to 5 with a mean of 2.33 requests for help per session). After Eve was

taught a response that allowed her to obtain attention, she utilized the attention-seeking response (range, 1 to 3 requests for attention per session) and a decrease was observed in off-task behavior.

The results of this study indicate that the assessment of antecedent variables developed by Carr and Durand (1985) may have utility with a different population. In addition, by testing the efficacy of the results of the assessment phase, this study extends the Cooper et al. (1990) study, further suggesting the importance of identifying environmental variables that are related to the target behavior and matching interventions to address those variables.

The current study has limitations that should be considered. First, the intervention that did not utilize assessment data was always programmed before the assessment-based intervention. This introduces the possibility that an order effect may have influenced the observed changes in behavior. Second, all data were collected in analogue settings, so it is difficult to comment on the usefulness of these procedures in the natural setting.

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